

REMARKS**I. General**

The issues outstanding in the instant application are as follows:

- Claims 1, 6, 7 and 15 stand rejected under 35 U.S.C. 102(b) as anticipated by *Bantz* et al., U.S. Pat. No. 5,394,433 (hereinafter, *Bantz*);
- Claim 2 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz* in view of *Poyhonen*, WO 93/22850 (hereinafter, *Poyhonen*);
- Claims 3, 9 and 18 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz* in view of *Petranovich* et al., U.S. Pat. No. 5,946,624 (hereinafter, *Petranovich*);
- Claims 4, 11 and 12 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz* in view of *Alamouti* et al., U.S. Pat. No. 5,933,421 (hereinafter, *Alamouti*);
- Claims 5 and 8 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz* in view of *Lemson*, U.S. Pat. No. 5,655,217 (hereinafter, *Lemson*);
- Claim 10 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz* in view of *Smith* et al., U.S. Pat. No. 6,366,573 (hereinafter, *Smith*);
- Claims 13 and 14 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz*;
- Claim 16 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz* in view of *Przelomiec* et al., U.S. Pat. No. 5,960,351 (hereinafter, *Przelomiec*);
- Claim 17 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz* in view of *Lund*, U.S. Pat. No. 5,844,934 (hereinafter, *Lund*);
- Claim 19 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz* in view of *Chang* et al., U.S. Pat. No. 5,956,638 (hereinafter, *Chang*); and
- Claim 20 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Bantz* in view of *Chang* and further in view of *Lemson*.

Applicants hereby traverse the outstanding rejections of the claims, and request reconsideration and withdrawal of the outstanding rejections in light of the amendments and remarks contained herein. One paragraph of the specification and claims 5, 7, and 19 are amended above. No new matter has been added by these amendments. Claim 5 is amended to clarify that the separate detecting antenna is colocated with the antennas used to effect RF transmission. Support for this limitation may be found in FIGURE 1. Claim 7 has been amended to emphasize use of an unlicensed RF band, as recited in the preamble. This amendment to claim 7 is purely cosmetic, and not for a substantial reason related to patentability. Markush group elements, speaking to interference mitigation actions, have been removed from Claim 19 to clarify the claim. Claims 1-20 are currently pending in this application.

II. Rejection under 35 U.S.C. §102(b)

Claims 1, 6, 7 and 15 are rejected under 35 U.S.C. §102(b) as being anticipated by *Bantz*. In response Applicants have amended claim 7 to clarify use of an unlicensed RF spectrum. Basis for this limitation exists in the preamble of claim 7 and throughout the specification. Therefore, no new matter has been entered.

The recited reference does not teach all claimed limitations.

It is well settled that to anticipate a claim, the reference must teach every element of the claim, see M.P.E.P. §2131. Moreover, in order for a prior art reference to be anticipatory under 35 U.S.C. §102 with respect to a claim, “[t]he elements must be arranged as required by the claim”, see M.P.E.P. §2131, citing *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Furthermore, in order for a prior art reference to be anticipatory under 35 U.S.C. §102 with respect to a claim, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim”, see M.P.E.P. §2131, citing *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913 (Fed. Cir. 1989). Applicants respectfully assert that the rejection does not satisfy these requirements.

Independent claim 1 defines “detecting and characterizing RF interference” and “adjusting the RF transmission to avoid said interference” (emphasis added). *Bantz* does not disclose these limitations. As discussed at column 18, line 58, *Bantz* classifies interference

“based on observation of the ACT” (active channel table). In other words *Bantz* is unaware of the type or character of interference, or even of its existence, other than through the changing of channels catalogued by the ACT. Conversely, claim 1 calls for “detecting ...interference”, which is discussed in the specification beginning on page 8, line 19 and continuing at least until page 9, line 22. Therein, detection is described as including, but not being limited to, a received signal strength measurement, use of a separate antenna to sweep the RF spectrum, a Fast Fourier Transform, and rapid off-channel measurements. *Bantz* fails to teach any such “detecting and characterizing RF interference” (emphasis added).

Furthermore, *Bantz* fails to disclose “adjusting the RF transmission to avoid said interference” as recited in claim 1. As pointed out by the Office Action in the rejection of claim 15, “*Bantz* also teaches frequency hopping”. However, as discussed in the Specification beginning on page 11, line 4 and as shown in FIGURE 2 “adjusting the RF transmission to avoid said interference” might include, but is not limited to, not only a frequency change but also, time synchronization, adaptive modulation, a change in data channel width, a change in data code rate, a change in signal/antenna polarity, and/or use of a separate antenna and/or hub. *Bantz* only discloses frequency hopping pattern assignment and control, and therefore, only adjustment of a frequency, not comprehensive adjustment of an RF transmission to avoid interference.

Independent claim 7, as amended, recites “calculating characteristics of RF interference within a band of interest of an unlicensed RF band to arrive at an interference profile” and “adjusting desired RF transmissions to accommodate said interference profile” (emphasis added). *Bantz* does not disclose these limitations. As admitted in the Office action in relation to claim 19 *Bantz* does not teach using “the unlicensed band” as recited in claim 7. Furthermore, as discussed above in relation to claim 1, *Bantz* classifies interference “based on observation of the ACT” and is unaware of the existence, type or character of interference other than through the changing of channels catalogued by the ACT. Conversely, the present claim calls for “calculating characteristics of RF interference”. Also, as pointed out above in relation to claim 1 *Bantz* only teaches frequency hopping for interference mitigation whereas claim 7 recites a comprehensive “adjusting desired RF transmissions”.

Furthermore, *Bantz* fails to teach the claimed “interference profile”. *Bantz* classifies interference by observing behavior of an ACT. *Bantz* never creates or arrives at an interference profile as recited in claim 7. *Bantz* could, at best, only be said to profile frequency charges or changes in the ACT. Therefore, *Bantz* not only does not teach the claimed “to arrive at an interference profile” (emphasis added) but *Bantz* cannot teach “adjusting desired RF transmissions to accommodate said interference profile”.

Therefore, Applicants respectfully assert that at least for the above reasons independent claims 1 and 7 are patentable over the 35 U.S.C. §102 rejections of record. Furthermore, there are great differences between each of claims 1 and 7 over the prior art of record, and a person of ordinary skill in the art considering the prior art would not find these differences obvious.

Claims 6 and 15 depend directly from independent base claims 1 and 7, respectively, and thus inherit all limitations of their respective base claims. Therefore, claims 6 and 15 set forth features and limitations not recited by *Bantz* for the reasons advanced immediately above, and for those reasons alone are patentable over the 35 U.S.C. §102 rejection of record.

Further, claim 6 recites “means for analyzing the RF data transfer for characteristics of interference” (emphasis added). In contrast, as pointed out above and by the Office Action, *Bantz*, at column 18, line 58, teaches classifying interference “based on observation of the ACT”. Thus, *Bantz* is unaware of the existence let alone the type or character of interference, other than through the changing of channels catalogued by the ACT. The interference itself is not analyzed as recited in claim 1, nor are characteristics of the interference discerned by *Bantz* by “analyzing the RF data transfer”. *Bantz* only observes the frequency changes in the ACT, not “the RF data transfer”.

Thus, Applicants respectfully assert that at least for the above reasons claims 1, 6, 7, and 17 are patentable over the 35 U.S.C. §102 rejection of record.

III. Rejections under 35 U.S.C. §103(a)

Claims 2 through 5, 8 through 14, and 16 through 20 stand rejected under 35 U.S.C. §103(a) based on a combination of *Bantz* and various other references as indicated above and

addressed below. In response, claims 5, 7, and 9 have been amended above to clarify and focus on the claimed invention. Applicants respectfully traverse these rejections.

A Prima Facie case of obviousness has not been established.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations. See M.P.E.P. §2143. Without conceding the second criteria, Applicants assert that the various obviousness rejections do not satisfy the first and/or the third criteria.

A. Rejections of claims 2-5, 8 -14, and 16-18 based on §102 rejection of claims 1 and 7.

1. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that *Bantz* does not teach having various limitations recited in claims 2 through 5, 8 through 14, and 16 through 18. The Office Action attempts to cure these deficiencies by introducing the various references identified above or Official Notice, which the Office Action alleges to teach the elements admitted as missing from *Bantz*. However, these combinations, as presented, do not teach or suggest all limitations of the claimed invention.

Base claims 1 and 7 are defined as described above. *Bantz* does not disclose various limitations of these claims, as discussed above. The secondary references, nor Office Notice, are relied upon in the Office Action as disclosing the limitations absent from *Bantz*. Therefore, the combination of references do not teach all elements of the claimed invention. Claims 2 through 5, 8 through 14, and 16 through 18 depend directly from independent base claims 1 and 7, and thus inherit all limitations of their respective base claims. Therefore, each of claims 2 through 5, 8 through 14, and 16 through 18 set forth features and limitations that are not taught by the various recited combinations of *Bantz* and the secondary references or Official Notice. Thus, Applicants respectfully assert that for the above reasons claims 2 through 5, 8 through 14, and 16 through 18 are patentable over the 35 U.S.C. §103(a) rejections of record. Furthermore, the cited secondary references fail to disclose limitations present in dependent claims 2 through 5, 8 through 14, and 16 through 18 as detailed below

and/or the Office Action fails to provide sufficient motivation for the various combinations of the cited references or Official Notice with *Bantz*.

B. The rejection of claim 2.

Claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Poyhonen*.

1. The recited combination does not teach or suggest all claimed limitations.

Claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Poyhonen*. The Office Action admits that *Bantz* does not teach “shifting a sequence of time slots”. The Office Action attempts to cure this deficiency by introducing *Poyhonen*, which the Office Action alleges to teach having such a “shifting a sequence of time slots”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 2 defines “means for shifting a sequence of RF time slots to avoid said interference”. *Poyhonen* does not disclose this limitation. As discussed at page 13, line 2, *Poyhonen*’s time slot groups are “used in accordance with predetermined repeated sequence.” In contrast, claim 2 discloses “adjusting an RF transmission” (claim 1) by “shifting a sequence of RF time slots to avoid said interference” (claim 2 (emphasis added)), not just setting a predetermined, repeated sequence of time slot groups as taught by *Poyhonen*. Thus, *Poyhonen* does not teach the claimed “means for shifting a sequence of RF time slots to avoid said interference”. Therefore, Applicants respectfully assert that at least for the above reasons claim 2 is patentable over the 35 U.S.C. §103(a) rejection of record.

2. The Office Action does not provide the requisite motivation.

As discussed above, the Office Action admits that *Bantz* does not teach having “shifting a sequence of time slots”. The Office Action attempts to cure this deficiency by introducing *Poyhonen*. The motivation for making the combination was presented as follows:

“It would have obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Poyhonen to the communication system of *Bantz* in order to maximize interference diversity.”

It is well settled that the fact that references can be combined or modified is not sufficient to establish a prima facie case of obviousness, M.P.E.P. §2143.01. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990), as cited in M.P.E.P. §2143.01. *Poyhonen* teaches the use of predetermined, repeated “time slot hopping” to mitigate self created interference by commonly controlled/operated cells. In contrast, the present systems and methods deal with a variety of interferences present in a unlicensed RF band data transmission environment. Applicants fail to understand how one striving to mitigate interference present in an unlicensed RF band, particularly outside interference, would be motivated to look to art directed to scheduling “time slot hopping” in a licensed RF environment. Thus, the motivation provided by the Examiner is improper and/or insufficient, as the motivation must establish the desirability for making the modification. No valid suggestion has been made as to why a combination of *Bantz* and *Poyhonen* is desirable. Therefore, the rejection of claim 2 should be withdrawn.

C. The rejection of claims 3, 9, and 18.

Claims 3, 9, and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Petranovich*.

1. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that *Bantz* does not teach having “skipping or eliminating at least one time period in a sequence of time period”. The Office Action attempts to cure this deficiency by introducing *Petranovich*, which the Office Action alleges to teach having “skipping at least one time period in a sequence of time period”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 3 defines “skipping at least one time period in a sequence of time periods to avoid said interference”, claim 9 defines “eliminating at least one of said periodic time slots for the duration of said interference”, and claim 18 defines “adjusting a time sequence of said desired RF transmissions to accommodate said interference profile”. *Petranovich* does not disclose these limitations. As discussed in the abstract, *Petranovich* discloses “synchronized frequency hopping” “at predetermined times” and “at predetermined intervals” that “periodically repeat”. Thus, *Petranovich* does not teach the claimed skipping, eliminating or adjusting in response to interference. *Petranovich* only teaches establishing a schedule of frequency changes to accommodate a frequency reuse plan or the like in a regulated environment. Therefore, Applicants respectfully assert that at least for the above reasons claims 3, 9, and 18 are patentable over the 35 U.S.C. §103(a) rejections of record.

2. The Office Action does not provide the requisite motivation.

As detailed above, the Office Action admits that *Bantz* does not teach having “skipping or eliminating at least one time period in a sequence of time period”. The Office Action attempts to cure this deficiency by introducing *Petranovich*. The motivation for making the combination was presented as follows:

“It would have obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of *Petranovich* to the communication system of *Bantz* in order to reduce interference.”

As discussed earlier, it is well settled that the fact that references can be combined or modified is not sufficient to establish a prima facie case of obviousness. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *Petranovich* teaches the use of predetermined, repeated “frequency hopping” to mitigate self-created interference by commonly controlled cells. In contrast, the present systems and methods deal with a variety of outside interferences present in a unlicensed RF band data transmission environment. Applicants fail to understand how one striving to mitigate interference present in an unlicensed RF band would be motivated to look to art directed to scheduling “frequency hopping” in a licensed RF environment. Thus, the motivation provided by the Examiner is improper and/or insufficient, as the motivation must

establish the desirability for making the modification. No valid suggestion has been made as to why a combination of *Bantz* and *Petranovich* is desirable. Therefore, the rejections of claims 3, 9, and 18 should be withdrawn.

D. The rejection of claims 4, 11, and 12.

Claims 4, 11, and 12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Alamouti*.

1. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that *Bantz* does not teach having “changing modulation rate”. The Office Action attempts to cure this deficiency by introducing *Alamouti*, which the Office Action alleges to teach having “that in order to increase the system’s capacity, the modulation needs to be changed”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 4 defines “means for changing modulation rate of said RF data transfer to avoid said interferences”, claim 11 defines “modifying a modulation scheme of said desired RF transmissions”, and Claim 12 defines “changing code rate of said desired RF transmissions”. (Emphasis added.) *Alamouti* does not disclose these limitations. As discussed at cited column 14, line 34, *Alamouti* discloses use of one of two different code rates for a personal wireless access network. No mention is made in *Alamouti* of changing or modifying code rates or modulation schemes. *Alamouti* only discloses use of two different modulation schemes (rates) under two different sets of conditions, not actively changing between modulation or code rates or actively modifying a modulation scheme. Thus, *Alamouti* does not teach the agile claimed “changing modulation rate”, “modifying a modulation scheme” or “changing code rate” for “adjusting ... RF transmissions” (base claims 1 and 7(emphasis added)) to actively avoid interference. Therefore, Applicants respectfully assert that for the above reasons claims 4, 11, and 12 are patentable over the 35 U.S.C. §103(a) rejection of record.

2. The Office Action does not provide the requisite motivation.

As pointed out above, the Office Action admits that *Bantz* does not teach having “changing modulation rate”. The Office Action attempts to cure this deficiency by introducing *Alamouti*. The motivation for making the combination was presented as follows:

“It would have obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Alamouti to the communication system of *Bantz* in order to enhance channel capacity.”

As discussed above, it is well settled that the fact that references can be combined or modified is not sufficient to establish a prima facie case of obviousness. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. As stated in the Abstract, *Alamouti* is directed to enabling high quality PCS communications in an environment where adjacent PCS service bands operate with out-of-band harmonics that may interfere. Thus, the teachings of *Alamouti* are intended to mitigate like-kind or self-interference. In contrast, the present systems and methods deal with a variety of outside interferences present in a unlicensed RF band data transmission environment. Applicants fail to understand how one striving to mitigate interference present in an unlicensed RF band would be motivated to look to art directed to selecting a modulated code rate to be set for use in a licensed RF environment. Thus, the motivation provided by the Examiner is improper and/or insufficient, as the motivation must establish the desirability for making the modification. No valid suggestion has been made as to why a combination of *Bantz* and *Alamouti* is desirable. Therefore, the rejection of claims 4, 11, and 12 should be withdrawn.

E. The rejection of claims 5 and 8.

Claims 5 and 8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Lemson*.

1. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that *Bantz* does not teach “using an additional antenna for detecting interference”. The Office Action attempts to cure this deficiency by introducing

Lemson, which the Office Action alleges to teach having “using an addition antenna 24 (fig. 1) for detecting interference”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 5, as amended, recites “a colocated antenna separate from the antennas used to effect said RF data transfer” and claim 8 defines “receiving on an antenna separate from the antenna used for said RF transmission at least a portion of said interference, said portion having energy characteristics different from said desired RF transmissions” (emphasis added). *Lemson* does not disclose at least these limitations.

As shown in FIGURES 1 and 2 of *Lemson*, and discussed at column 10, lines 2-5, *Lemson* discloses placing signal level monitoring antennas (SLMAs) at the periphery of a microcell. In contrast, claim 5, as amended, recites “a colocated antenna separate from the antennas used to effect said RF data transfer” (emphasis added). Thus, *Lemson* does not teach the claimed separate colocated antenna to detect interference.

Turning to claim 8, *Lemson* discloses at column 8, lines 31-35 “signal level monitor 32 monitors the levels of microwave signals which are received by an SLMA 24 (and which will include, for example, signals which are transmitted from incumbent radio system antenna 10 of the nearby incumbent radio system site 11”). In other words, *Lemson*’s SLMAs receive signals with the same characteristics as mobile communications network 12. In contrast, claim 8 recites “receiving on an antenna separate from the antenna used for said RF transmission at least a portion of said interference, said portion having energy characteristics different from said desired RF transmissions” (emphasis added). Thus, *Lemson* does not teach the claimed reception of interference with characteristics different from desired RF transmissions. Therefore, Applicants respectfully assert that at least for the above reasons claims 5 and 8 are patentable over the 35 U.S.C. §103(a) rejection of record.

2. The Office Action does not provide the requisite motivation.

The Office Action admits that *Bantz* does not teach having “using an addition antenna for detecting interference”. The Office Action attempts to cure this deficiency by introducing *Lemson*, which the Office Action alleges to teach having such “using an addition antenna 24

(fig. 1) for detecting interference”. The motivation for making the combination was presented as follows:

“It would have obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Lemson to the communication system of *Bantz* in order to enhance the detection of interference.”

As pointed out above, it is well settled that the fact that references can be combined or modified is not sufficient to establish a prima facie case of obviousness. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *Lemson* teaches the use of SLMA’s for “receiving and monitoring information indicative of the presence and location of incumbent radio stations”, “to determine the frequency and degree of RF isolation”. See the abstract of *Lemson*. Applicants fail to understand how one striving to mitigate interference present in an unlicensed RF band would be motivated to look to art directed to monitoring incumbent radio signals “in order to prevent the network from interfering with received signals of an incumbent radio system”. Thus, the motivation provided by the Examiner is improper and/or insufficient, as the motivation must establish the desirability for making the modification. No valid suggestion has been made as to why a combination of *Bantz* and *Lemson* is desirable. Therefore, the rejection of claims 5 and 8 should be withdrawn.

F. The rejection of claim 10.

Claim 10 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Smith*.

1. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that *Bantz* does not teach “reducing in time one of the slot during interference”. The Office Action attempts to cure this deficiency by introducing *Smith*, which the Office Action alleges to teach “reducing in time one of the slot during interference”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 10 defines “reducing in time at least one of said periodic time slots for the duration of said interference” (emphasis added). *Smith* does not disclose this limitation. As discussed at column 5, lines 59-61 *Smith* discloses “Longer slots are then allocated to accommodate the weak received powers contending against significant levels of noise and interference” (emphasis added). Thus, *Smith* does not teach the claimed “reducing in time at least one of said periodic time slots for the duration of said interference” (emphasis added). Conversely, at column 5, lines 57-59, *Smith* teaches “Short slots are allocated initially so that the few, strong powers contending against low noise and interference can be eliminated efficiently” (emphasis added). Therefore, *Smith* teaches away from the invention of claim 10. Therefore, Applicants respectfully assert that for at least the above reasons claim 10 is patentable over the 35 U.S.C. §103(a) rejection of record.

2. The Office Action does not provide the requisite motivation.

The Office Action admits that *Bantz* does not teach having “reducing in time one of the slot during interference”. The Office Action attempts to cure this deficiency by introducing *Smith*, which the Office Action alleges to teach “reducing in time one of the slot during interference”. The motivation for making the combination was presented as follows:

“It would have obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of *Smith* to the communication system of *Bantz* in order to save processing time.”

As noted above, it is well settled that the fact that references can be combined or modified is not sufficient to establish a prima facie case of obviousness. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. As also noted above, *Smith* teaches away from the invention claimed in claim 10. Furthermore, *Smith* deals with answer back pager systems. Applicants fail to understand how one striving to mitigate interference present in an unlicensed RF band would be motivated to look to art directed to pager system operating in regulated RF bands to mitigate interference. Thus the motivation provided by the Examiner is improper and/or insufficient, as the motivation must establish the desirability for making the modification. No

valid suggestion has been made as to why a combination of *Bantz* and *Smith* is desirable. Therefore, the rejection of claim 10 should be withdrawn.

G. The rejection of claims 13 and 14.

Claims 13 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz*

1. Examiner's Personal Knowledge.

In the rejection of claims 13 and 14, the Office Action states that “it is taken official notice that the art of implementing space and macro-diversity is conventionally well known”. Under Rule 37 C.F.R. §1.104(d)(2), the Examiner is hereby requested to provide and make of record an affidavit setting forth his data as specifically as possible for this assertion. Alternatively, under M.P.E.P. §2144.03, the Examiner is hereby requested to cite a reference in support of this assertion. Otherwise the rejection of claims 13 and 14 should be withdrawn.

2. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that *Bantz* does not teach having a “different antenna or different hub”. The Office Action attempts to cure this deficiency by taking Official Notice that “implementing space and macro-diversity is conventionally well known”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 13 defines “using a different antenna for said desired RF transmissions” and Claim 14 defines “using a different hub for said desired RF transmissions”. Official Notice is not properly taken to address these limitations. Official Notice is taken of “implementing space and macro-diversity”. However, “diversity” infers that a plurality of antennas are receiving or transmitting the same signals, and that received signals are either summed or the stronger/cleaner signal selected. Conversely, claims 13 and 14 claim use of a different antenna or a different hub for desired RF transmissions, not simultaneous use of a plurality of antennas or hubs. Therefore, Applicant respectfully assert that at least for the above reason claims 13 and 14 are patentable over the 35 U.S.C. §103(a) rejection of record.

3. The Office Action does not provide the requisite motivation.

As discussed above, the Office Action admits that *Bantz* does not teach having “different antenna or different hub”. The Office Action attempts to cure this deficiency by taking Office Notice that “implementing space and macro-diversity is conventionally well known”. The only motivation for making the combination was presented as follows:

“The purpose for providing those is to enhance channel quality.”

As noted above, it is well settled that the fact that references can be modified is not sufficient to establish a prima facie case of obviousness. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the modification. Thus, the motivation provided by the Examiner is improper and/or insufficient and insufficient, as the motivation must establish the desirability for making the modification. No valid suggestion has been made as to why a combination of *Bantz* and knowledge in the art is desirable. Therefore, the rejection of claims 13 and 14 should be withdrawn.

H. The rejection of claim 16.

Claim 16 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Przelomiec*. However, the Office Action indicates its argument as being directed to claim 2. Yet, the limitation “changing channel width” of claim 16 is recited by the Office Action. Applicants respectfully request clarification. Regardless, the Office Action fails to establish a prima facie case for the obviousness rejection of claim 16.

1. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that *Bantz* does not teach having “changing channel width”. The Office Action attempts to cure this deficiency by introducing *Przelomiec*, which the Office Action alleges to teach having “changing channel width”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 16 defines “changing channel width of said desired RF transmissions”. *Przelomiec* does not disclose this limitation. As shown in FIGURES 1 and 2 of *Przelomiec*, and discussed at column 4, lines 5-21, *Przelomiec* discloses use of uniformly sized contiguous channels, such as 25kHz and 30kHz wide channels. Column 16, lines 7-17 of *Przelomiec* only discloses a portion of a “method for deriving discontinuous RF operating frequencies”, wherein “tentatively assigned channel center frequencies” are shifted to provide a guardband. Applicants can find no mention in *Przelomiec* of “changing channel width”. Therefore, Applicants respectfully assert that for at least the above reason claim 16 is patentable over the 35 U.S.C. §103(a) rejection of record.

2. The Office Action does not provide the requisite motivation.

As noted above, the Office Action admits that *Bantz* does not teach having “changing channel width”. The Office Action attempts to cure this deficiency by introducing *Przelomiec*. The motivation for making the combination was presented as follows:

“It would have obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of *Przelomiec* to the communication system of *Bantz* in order to minimize interference.”

It is well settled that the fact that references can be combined or modified is not sufficient to establish a prima facie case of obviousness. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *Przelomiec* discloses techniques and systems for frequency planning in a licensed cellular communications environment. See the abstract and column 4, lines 5-21 of *Przelomiec*. Therefore, Applicants fail to understand how one striving to mitigate interference present in an unlicensed RF band would be motivated to look to art directed to regulated frequency planning. Thus, the motivation provided by the Examiner is improper and/or insufficient, as the motivation must establish the desirability for making the modification. No valid suggestion has been made as to why a combination of *Bantz* and *Przelomiec* is desirable. Therefore, the rejection of claim 16 should be withdrawn.

I. The rejection of claim 17.

Claim 17 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Lund*. Once again, the Office Action directs its rejection to claim 2. However, the Office Action recites an element of claim 17. Applicants respectfully request clarification. Regardless, the Office Action fails to establish a prima facie case for the obviousness rejection of claim 16.

1. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that *Bantz* does not teach “changing channel polarity”. The Office Action attempts to cure this deficiency by introducing *Lund*, which the Office Action alleges to teach “changing channel polarity”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 17 defines “changing polarity of said desired RF transmissions” to accommodate an interference profile. *Lund* does not disclose this limitation. As discussed at column 22, lines 19-24, *Lund* discloses “using amplitude-modulation in response to opposite phases or polarities of an applied signal in a manner such that the average transmitted power at any frequency within the range of frequencies transmitted is maintained within the range of frequencies transmitted is maintained substantially constant and to minimize detection by and interference with other communication systems”. Also, disclosed by *Lund* at column 22, lines 35-39 “outputs of opposite phase or polarity of input circuit 223 are applied to a pair of modulator circuits 225 and 226, while outputs of opposite phase or polarity of input circuit 224 are applied to a pair of modulator circuits 227 and 228”. Thus, *Lund* teaches the simultaneous use of opposite polarities in a spread spectrum communications system. However, *Lund* fails to teach actively “changing polarity of said desired RF transmissions” (emphasis added) to accommodate an interference profile. Therefore, Applicants respectfully assert that at least for the above reason claim 17 is patentable over the 35 U.S.C. §103(a) rejection of record.

2. The Office Action does not provide the requisite motivation.

The Office Action admits that *Bantz* does not teach having “changing channel polarity”. The Office Action attempts to cure this deficiency by introducing *Lund*. The motivation for making the combination was presented as follows:

“It would have obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of *Lund* to the communication system of *Bantz* in order to minimize interference.”

It is well settled that the fact that references can be combined or modified is not sufficient to establish a prima facie case of obviousness. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. Applicants fail to understand how one striving to mitigate interference present in an unlicensed RF band would be motivated to look to art directed to a spread spectrum communication system operated in licensed RF bands. Thus, the motivation provided by the Examiner is improper and/or insufficient, as the motivation must establish the desirability for making the modification. No valid suggestion has been made as to why a combination of *Bantz* and *Lund* is desirable. Therefore, the rejection of claim 17 should be withdrawn.

J. The rejection of independent claim 19.

Claims 19 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Chang*.

1. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that *Bantz* does not teach using “the unlicensed band”. The Office Action attempts to cure this deficiency by introducing *Chang*, which the Office Action alleges to teach “monitoring channels having interference characteristics for used in unlicensed band”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 19, as amended, defines “breaking said extraneous RF signals into interference types” and “selecting at least one of a group of categories of action to reduce interference...”. Neither *Bantz* nor *Chang* disclose these limitations.

As discussed above, at column 18, line 58, *Bantz* classifies interference “based on observation of the ACT” (active channel table). In other words, *Bantz* is unaware of the type or character of interference present in extraneous RF signals, or even of the existence of interference in extraneous RF signals. *Bantz* only observes the changing of channels catalogued by an ACT. Thus, *Bantz* fails to teach “breaking said extraneous RF signals into interference types” (emphasis added). Also, *Chang* does not disclose “breaking said extraneous RF signals into interference types”. *Chang* only measures a threshold of interference. Thus, neither *Bantz* nor *Chang* teach the claimed “breaking said extraneous RF signals into interference types”.

Further, neither *Bantz* nor *Chang* disclose “selecting at least one of a group of categories of action to reduce interference, said group of actions consisting of: ceasing transmissions on a channel for a time slot conforming to determinable time frames of said periodic interference; ceasing transmissions on a channel for a time slot conforming to determinable time frames of said intermittent interference; adapting modulation of said transmissions; changing code rate of said transmissions; adjusting a time sequence of said transmissions to accommodate said periodic interference; and adjusting a time sequence of said transmissions to accommodate said intermittent interference” as recited by claim 19, as amended. *Bantz* only discloses “frequency hopping” as a means to mitigate the effects of interference. *Chang* only monitors interference to determine regulatory mandated thresholds and to set gain levels accordingly. Thus, neither *Bantz* nor *Chang* teach the claimed “categories of action to reduce interference...”.

Claim 20 depends directly from base claim 19 and thus inherits all limitations of claim 19. Therefore, claim 20 sets forth features and limitations not recited by the combination of *Bantz* and *Chang*. Thus, Applicants respectfully assert that for the above reasons claims 19 and 20 are patentable over the 35 U.S.C. §103(a) rejections of record.

2. The Office Action does not provide the requisite motivation.

The Office Action admits that *Bantz* does not teach use of “the unlicensed band”. The Office Action attempts to cure this deficiency by introducing *Chang*, which the Office Action alleges to teach “monitoring channels having interference characteristics for used in unlicensed band”. The motivation for making the combination was presented as follows:

“It would have obvious to one of ordinary skill in the art at the time the invention was made to modify the wireless network of Bantz with the unlicensed band of Chang so that interference can be reduced in the unlicensed band.”

As discussed above, it is well settled that the fact that references can be combined or modified is not sufficient to establish a prima facie case of obviousness. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. While *Chang* addresses minimizing cordless phone emissions which might interfere with other similar devices, the present invention is directed to mitigation of outside interference with RF data transmissions. Therefore, Applicants fail to understand how one would be motivated to employ the teachings of *Chang* to address the problems addressed by the present invention. Furthermore, while *Chang* teaches the use of an unlicensed band, *Bantz* teach use of a licensed band. Thus, these references teach away from their combination. For at last these reasons, the motivation provided by the Examiner is improper and/or insufficient, as the motivation must establish the desirability for making the modification. No valid suggestion has been made as to why a combination of *Bantz* and *Chang* is desirable. Therefore, the rejection of independent claim 19 and its dependent claim, 20, should be withdrawn.

K. The rejection of claim 20.

Claim 20 stands rejected under 35 U.S.C. §103(a) as being unpatentable over *Bantz* in view of *Chang* and further in view of *Lemson*. However, in its analysis the Office Action addresses its arguments to claims 5 and 8. Therefore, the rejection of claim 20 is improper.

Furthermore, claim 20 depends directly from base claim 19 and thus inherits all limitations of claim 19. Therefore, claim 20 sets forth features and limitations not recited by the combination of *Bantz* and *Chang*. *Lemson* is not relied on by the Office Action as providing those limitations. Thus, Applicants respectfully assert that claim 20 is patentable over the 35 U.S.C. §103(a) rejection of record.

1. The recited combination does not teach or suggest all claimed limitations.

The Office Action admits that neither *Bantz* nor *Chang* teach “using an addition antenna”. The Office Action attempts to cure this deficiency by introducing *Lemson*, which the Office Action alleges to teach “using an addition antenna 24 (fig. 1) for detecting interference”. However, this combination, as presented, does not teach or suggest all limitations of the claimed invention.

Claim 20 defines “receiving on an antenna separate from the antenna used for said RF transmissions at least a portion of said extraneous RF signals, said portion having energy characteristics different from said desired RF transmissions” (emphasis added). Neither *Bantz*, *Chang*, nor *Lemson* disclose this limitation. *Lemson* discloses at column 8, lines 31-35 “signal level monitor 32 monitors the levels of microwave signals which are received by an SLMA 24 (and which will include, for example, signals which are transmitted from incumbent radio system antenna 10 of the nearby incumbent radio system site 11”). In other words, *Lemson*’s SLMAs receive signals with the same characteristics as mobile communications network 12. In contrast, claim 20 recites “receiving...at least a portion of said interference, said portion having energy characteristics different from said desired RF transmissions” (emphasis added). Thus, *Lemson* does not teach the claimed reception of interference with characteristics different from desired RF transmissions. Also, *Bantz* and *Chang* do not teach, nor are relied on by the Office Action as teaching, this limitation. Therefore, Applicants respectfully assert that for the above reason claim 20 is patentable over the 35 U.S.C. §103(a) rejection of record.

2. The Office Action does not provide the requisite motivation.

The Office Action admits that *Bantz* as modified by *Chang* does not teach “using an addition antenna”. The Office Action attempts to cure this deficiency by introducing *Lemson*. The motivation for making the combination was presented as follows:

“It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Lemson to the communication system of Bantz in order to enhance the detection of interference.”

As discussed above, it is well settled that the fact that references can be combined or modified is not sufficient to establish a prima facie case of obviousness. Such language is merely a statement that the reference can be modified, and does not state any desirability for making the modification. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. While *Chang* teaches the use of an unlicensed band, both *Bantz* and *Lemson* teach use of a licensed band. Thus, these references teach away from their combination. Therefore, the motivation provided by the Examiner is improper and/or insufficient, as the motivation must establish the desirability for making the modification. No valid suggestion has been made as to why a combination of *Bantz*, *Chang* and *Lemson* is desirable. Therefore, the rejection of claim 20 should be withdrawn.

L. The §103 rejections of claims 2-5, 8-14, and 16-20.

Hindsight

Applicants respectfully assert that the Examiner is relying on impermissible hindsight in order to piece together the elements of the claims based on knowledge gleaned from Applicants' disclosure. Applicants assert that without the teachings of Applicants' disclosure one of ordinary skill in the art would not find it obvious to modify the teachings of *Bantz* for the use of frequency hopping in response to interferences classifications gleaned from changes in an ACT to apply the various interference mitigation techniques taught by the secondary cited references. The Examiner seems to be relying on the teachings of the present application to conclude that one of ordinary skill in the art would be motivated to modify *Bantz* in such a manner.

IV. Conclusion

For all the reasons given above, Applicants submit that the pending claims distinguish over the prior art of record under 35 U.S.C. §§102 and 103. Accordingly, Applicants submit that this application is in full condition for allowance.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with Markings to Show Changes Made**".

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2380, under Order No. 60783/P003US/10102074 from which the undersigned is authorized to draw.

Applicants respectfully request that the Examiner call the below listed attorney if the Examiner believes that such a discussion would be helpful in resolving any remaining problems.

Dated: October 16, 2002

Respectfully submitted,

By 

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**Version With Markings to Show Changes Made****In the Specification****RECEIVED****OCT 22 2002****Technology Center 2600**

The paragraph beginning at page 11, line 4:

Turning to the logical branch diagram of FIGURE 2, as shown in box 201 extraneous RF signals are monitored in accordance with the methods described above. The interference is then broken down into interference types at box 202. Generally, the types of interference affecting the present system are narrow band interference impinging on a particular frequency used by the present system and wideband interference impinging upon several system frequencies. The characteristics of the interference are determined at 203. Interference may be of different types having various characteristics, 204, including narrow band interference, box 204-1, impinging on a particular system channel; periodic or intermittent narrow band interference, occurring at determinable time intervals or for a determinable duration, box 204-2; wideband interference, interfering with more than one channel 204-3; and periodic or intermittent wideband interference occurring for a determinable time interval, such as a radar pulse, box 204-4.

In the claims

5. (Amended) The system of claim 1 wherein said means for detecting is [an] a collocated antenna separate from the antennas used to effect said RF data transfer.

7. (Amended) A method of reducing RF interference for unlicensed band transmissions, said method comprising the steps of:

calculating characteristics of RF interference within a band of interest of an unlicensed RF band to arrive at an interference profile; and

adjusting desired RF transmissions to accommodate said interference profile.

19. (Amended) A method for adapting desired RF transmissions to accommodate RF interference said method comprising the steps of:

monitoring an unlicensed RF band for extraneous RF signals;

breaking said extraneous RF signals into interference types;

determining characteristics of said interference, said interface being categorized in at least one of a group of categories consisting of:

periodic narrow band interference;

intermittent narrow band interference;

wideband interference;

periodic wideband interference; and

intermittent wideband interference;

selecting at least one of a group of categories of action to reduce interference, said group of actions consisting of:

ceasing transmissions on a channel for a time slot conforming to determinable time frames of said periodic interference;

ceasing transmissions on a channel for a time slot conforming to determinable time frames of said intermittent interference;

adapting modulation of said transmissions;

changing code rate of said transmissions;

[using a different antenna for said transmissions;]

[using a different hub for said transmissions;]

[changing frequency of said transmissions;]

[changing a channel width of said transmissions;]

[changing polarity of said transmissions;]

adjusting a time sequence of said transmissions to accommodate said periodic interference; and

adjusting a time sequence of said transmissions to accommodate said intermittent interference.